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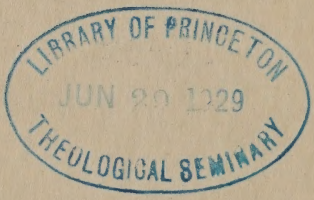
# EMERGENT EVOLUTION AND THE INCARNATION

WOODS

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Emergent evolution and the
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# Emergent Evolution and the Incarnation

BY

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# PREFACE

THIS little book of lectures, given by Dr. Woods at our Summer Conference in 1927, is the second volume in the "Washington Cathedral Series" published by the College of Preachers. This series is planned for the purpose of putting forth notable lectures and addresses made at the College which, while claiming no dogmatic authority, may none the less be helpful in clarifying thought and in strengthening faith.

The present topic is a timely one and the lecturer well qualified to deal with it. Dr. Woods came into the ministry of the Church after a thorough scientific training. His competence as a biologist is widely recognized. He has done valuable research work, under Government appointment, in the laboratories of the Maine Agricultural Experiment Station and elsewhere. He has

contributed papers to the proceedings of learned scientific bodies. For five years he was associate professor of biology at Wesleyan University, Middletown, Connecticut. At present, he is a member of the science faculty at Kent School.

Dr. Woods' ardent Christian faith and wholehearted devotion to his ministry have stimulated, rather than repressed, his interest in his chosen scientific field. Which things are a parable of great significance. For the "reconciliation" of science and religious faith becomes convincing only when demonstrated, not as an abstract possibility, but as a real experience, as, for instance, when one finds a priest like Dr. Woods who is both scientist and theologian.

The lectures were given to a keenly interested audience of some fifty clergy. The informal discussion which followed then added greatly to their effectiveness, as it gave the lecturer a chance to amplify his meaning, and explain technical terms. There is therefore a real loss involved in printing them out of their context and without ex-

planatory notes. On the other hand, the main thesis of the lectures was recognized as unusually helpful and illuminating.

Those who heard Dr. Woods desired to have in permanent form what he had said. And chiefly for their sake Dr. Woods consented to this publication of his lectures, changed only slightly from the form in which they were delivered. But there are others, among both clergy and laity, who doubtless will welcome his guidance in a difficulty which presses hard upon many thoughtful men and women. Evolution seems to make it quite clear that there has been, from the beginning, a progressive development of life and living things, by an upward "multigrade" movement, from one "level" to another: and the end is not yet. How then can our Christian faith be justified that in a historical Incarnation, at a fixed time and place, there has been given to us the perfect, and therefore final, revelation not alone of God Himself but equally and simultaneously of our own human nature? How can He who stands in the midst of a time series be also

its end and consummation? Dr. Woods' answer to this question deserves careful thought. He speaks with authority as a biologist. He speaks no less authoritatively as a humble and devout believer.

PHILIP M. RHINELANDER,
Bishop and Warden.

# I. THE POINT OF VIEW

AN ever increasing literature which deals with the relation of scientific and theological concepts indicates that here is one of the important intellectual problems of the day. Such a title as this essay bears raises at once a part of the larger issue stated above, the question of the apparent conflict between science and the Christian religion. While the writer, with Professor Morgan, holds it imperative that "there should be no disjunctive antithesis between the timeful and the timeless which must in some way be combined in a higher synthesis" (see 18 o), he also agrees sorrowfully, but emphatically, with Dean Inge that we should "hear no more of clergymen thanking God that theology and science are now reconciled, for unhappily it is not true" (see 19 b). While the writer believes that Dean Inge is right in his assertion

(l. c.) that this conflict has its roots in astronomical research, rather than in evolutionary biology, this study deals almost exclusively with biology, not so much because modern discussion centers around the evolutionary theory, as because cosmological difficulties fall away, once the central fact of Christianity is granted. The Incarnation as such does not depend upon the geocentric theory, since if God ever *did* become incarnate upon this planet, its relative insignificance in the physical universe is of no particular moment. Doubtless one must and should face unequivocally the problem: In the light of modern knowledge, can an intelligent person accept such an idea as the Incarnation, or must it be ruled out as a conception belonging more properly to the childhood of the race?

Admittedly this essay does not face that issue as a primary thesis; but it does seek to answer a question which may be stated as follows: Does modern evolutionary biology render impossible the acceptance of the Christian doctrine of the Incarnation, and if not,

how may the two be combined into a satisfactory synthesis? These pages are an expansion of two lectures delivered at the College of Preachers in Washington, D. C., in 1927, and the excuse for their publication is a feeling on the part of the writer that this subject demands more specific treatment than it has commonly received at the hands of those engaged in reconciling the claims of science and religion. There seems to be general agreement that evolution is not inconsistent with some sort of theistic belief, but in most cases (or so it seems to the writer) it is a belief far short of the Christian standard.

For example, in the recent collection of brilliant essays published as *Creation by Evolution,* one finds the statement that creation by evolution reveals a Godhead infinitely worthy of obedience and adoration, but it is qualified by the proposition that all facts of human experience are natural, which must mean either that God is not "supernatural" to man, or that man can have no contact with Him (see 16 a). In another

essay, monistic identification of God and the universe, not permissible on Christian premises, is hinted at (see 16 d), and in another the implication seems clear that Christian teaching as to the origin and nature of the soul is incorrect (see 16 c).

One can overlook prejudice against Christian theology, even when it is deliberately offensive, although it does seem unfortunate that in such a book as *Creation by Evolution,* needless incidental disparagement of "mediaevalism" should be allowed a place, when the frankly evolutionary position of such recognized Christian theologians as St. Gregory of Nyssa and St. Augustine of Hippo is completely ignored. Still more unfortunate is the disparagement of the Church's teaching where Christian dogma is held up to ridicule without any reference to the theological distinction between "image" and "likeness" which has been a part of the Christian tradition at least since Origen's *De Principiis.* But the writer does not wish to minimize what seems to him a serious cleavage of opinion. For he is convinced that what most ortho-

dox Christians, of whatever denomination, regard as the heart of the Gospel, the secret of its power, is precisely what modern thought tends to reject as "dramatic mythology . . . the dross to be smelted out, the chaff to be winnowed from the pure grain of Christian teaching" (see 18 dd).

One may wholeheartedly agree, as does the writer, that "it is a sublime picture that the evolutionist discloses" (see 16 b), and at the same time regret as exceedingly unfortunate the somewhat similar wording of a joint pronouncement signed some years ago by leading scientists and theologians of the country. The writer dislikes the statement, "It is a sublime concept of God which is furnished by science," because he does not believe that it is the function of science to interpret in terms of God. It seems to him that if we are to regain clear thinking in this difficult field, it is as necessary for science as such to remain purely agnostic as it is for theology to wait upon science for the interpretation of natural phenomena.

Before proceeding further, we should sum-

marize certain postulates on which this essay rests and on which its reasoning depends, such affirmations as Professor Morgan fittingly terms "acknowledgments" (see 18 r). In this connection six are of special importance:

(1) There is a material or physical universe, intrinsically existent, governed by physical or natural law. This universe is the proper field of scientific study. Science is therefore concerned with the "metrical aspects of reality" and in its own domain its results are to be unquestioningly accepted: that is, they are not, as such, subject to theological review.

(2) This intrinsic existence of the world merely signifies its "otherness" from God, on Whom it ultimately depends. God, the Blessed Trinity of Christian theology, created the physical universe, and constantly sustains it.

(3) Creation was *ex nihilo,* that is, Divine Will is the sole ultimate cause of creaturely existence and continuance. We do not mean that *nihil* was the material used

in creation, or that creation was *ex* anything at all. (See *Living Church,* October 13, 1928, p. 794.)

(4) This creation was purposive, that is, it embodied a project adopted for execution but not yet executed. It was destined to issue in a positive result ideally represented or cognized before its achievement in time (see 6 d). It was therefore a creative act which gave rise to process, and with this thought in mind we may speak of "creative process." In other words, as Sir Oliver Lodge has recently pointed out, the method of creation was by evolution (see 15).

(5) But although creation includes process, the doctrine of eternal creation, belief that God cannot exist without creative activity, that "the basal constitution of the universe is eternally complete" (see 6 c), is rejected, in spite of the high favor with which it is regarded by philosophy today. While the exact phraseology presents difficulty, Christians believe that God has been always, that He existed as Perfect Being before He created the world in time, that His Being is

unconditioned by anything external to Himself. (They do of course realize that such beliefs are reasonable only on the Trinitarian conception, and must be rejected by those who deny that three Persons exist in the unity of the one Godhead.)

(6) While the validity of the scientific method is assumed, and the freedom of science to investigate unhampered its own proper "universe of discourse" is vigorously maintained, at the same time the Christian religion is frankly accepted as a "supernatural" revelation, and the right is claimed for a developed theology to supplement scientific conclusions with their proper spiritual interpretation. The writer therefore wishes to continue the practical dualism of reason and revelation traditional in Christian thought (see 6 a). Revelation is above reason, but not contrary to it. The function of revelation is to enlighten us where reason alone would fail, not to relieve us of the duty of intellectual search. This is quite similar to Bergson's position: "Philosophy ought to follow science in order to super-impose on

scientific truth a knowledge of another kind which may be called metaphysical" (see 2).

Accordingly, the two historic creeds recommended in the eighth Article are accepted as an authoritative summary of the revealed doctrine committed to the Church, and the teaching of the second Article about the Incarnation is received as true, involving though it does both the virgin birth and the physical resurrection of Jesus. This inclusion is deliberate in spite of a widespread feeling (considered in a later section) that such doctrines are incompatible with biology. For the purposes of this paper, then, the Christian faith signifies the acceptance of the traditional creeds, and those who adhere to these creeds are spoken of as Catholic-minded, in order to distinguish them from those who, while claiming to be Christians, yet feel free to dissociate themselves from what has been historically the Christian position.

* * * * * *

The cornerstone of this position, the acceptance of a practical dualism between rea-

son and revelation, is strikingly suggested by the lines of an ancient Christian hymn:

> Rerum Deus tenax vigor
> Immotus in te permanens,
> Lucis diurnae tempora
> Successibus determinans.

Science is concerned with the *res,* that is, with the physical phenomena of the material world, considered without reference to God as their *tenax vigor.* Scientific interpretation is therefore (and for its purposes legitimately and rightly) in terms of mechanism from which considerations in terms of purpose have been ruled out (see 18 a). Yet "belief in purpose as the causal reality of which nature is an expression is not inconsistent with a full and wholehearted acceptance of the explanations of naturalism within their appropriate sphere" (see 18 d), and therefore the problem which confronts Catholic-minded Christians is a synthesis between what science can tell us of these *res* and what God has revealed to us through His Church of Himself as their *tenax vigor, immotus in se permanens.*

In other words, the Christian does not deny such relationships in the natural order as science may establish, but he does assert relationships which science as such must ignore. Our meaning may be illustrated by another Breviary hymn:

> Demersa lymphis imprimens
> Subvecta coelis erigens:
> Ut stirpe ab una prodita
> Diversa repleant loca.

From the standpoint of a biology which teaches the monophyletic origin of the vertebrates, the statement that fishes and birds have been *stirpe ab una prodita* may be accepted as scientifically accurate. Christians should freely admit this interpretation of ancestry on the naturalistic plane, but should also insist that primarily and fundamentally "common ancestry" denotes relationship to a divine Creator, rather than the lesser relatedness studied by organic evolution.

The point is well taken—most clearly by More (see 17 a)—that in one important respect the evolutionary concept of modern science differs from the various theories pro-

posed by the Greeks: it rests upon a fossil record which has been only recently available. It has therefore a more secure basis of facts and observations than did the older speculations. Nevertheless it is fair to maintain that the scientific doctrine of evolution is not inconsistent with the gist of the Fathers' teachings. St. Augustine (see 1 a) is careful to assign to science its proper sphere of investigation, and both St. Gregory of Nyssa (see 9) and St. Augustine (see 1 b) make explicit allowance for a long period of development in which the createdly enfolded might be progressively unfolded. It also seems fair to say that the doctrine is consistent with that reverent regard for Holy Scripture on which the Church has always insisted, for her tradition, as Bishop Peter Lombard taught (see 21) is that the Bible deals with spiritual matters, not with scientific data such as man is able to accumulate by intellectual effort.

While at present biologists do not agree as to the *method* by which evolution has been accomplished—for example, Professor New-

man (see 20) and Professor Kellogg (see 14) hold mutually exclusive views as to the effect of later scientific knowledge on what is technically known as Darwinism—it should be clearly understood that this does not affect the *fact* of evolution or the validity of the evolutionary theory, concerning neither of which is there the slightest doubt among biologists. It is, however, frankly admitted that any synthesis between science and the Christian religion is necessarily tentative, both because scientific knowledge is constantly advancing, and because the Church's understanding is subject to spiritual and intellectual development, even though the content of the faith does not change. Nevertheless it seems urgent that we should seek some reconciliation of apparently discordant teachings, which have definite intellectual claims on our allegiance. The writer does not presume to set forth *the* Christian interpretation of evolution, but he does aim to present *an* interpretation which does justice as well to biology as to the Faith.

To this end is set forth in section two a

preliminary statement of our thesis. This is examined in section three in the light of unfavorable criticisms which might conceivably be raised from the scientific standpoint, chiefly that of biology. In the fourth section there is a consideration of the philosophical interpretation known as emergent evolution and its bearing on the Christian faith. The fifth section is a brief treatment of the problem of the fall from the evolutionary viewpoint; and the concluding section is a restatement of the synthesis proposed, more detailed than that of section two.

## II. EVOLUTION AND THE INCARNATION

OR Catholic-minded Christians, the central point of their religious experience, as well as of their faith and hope, is the deep-seated conviction that although our Lord Jesus Christ was born, lived, and died as Man, He was of one substance with the Father, very and eternal God. They believe that this coming of God in human flesh was a permanent joining of Godhead and Manhood in one Person, in a union destined to be all-embracing. Regarding the Incarnation as the goal of God's creative activities, they look upon it as the clue to the secret mysteries of creation. As the natural sciences present their respective data, Christians therefore interpret them in the light of this, God's clearest and final self-revelation. Thus they may recognize a long period of in-

organic evolution, which finally gave place to the organic and then to the human, as plastidules developed into more complex types which finally culminated in man. But when the fulness of the time was come, God sent forth His Son and the Word was made flesh and dwelt among us. As Christ became Head over all things to the Church which is His Body, that Church, one, holy, catholic, and apostolic, constituted a new level or order in the natural universe, an order whose evolution is still continuing and whose consummation we are yet to witness, for not yet has that Church been perfected a glorious Bride without spot or wrinkle or any such thing.

If this interpretation be true, if the Incarnation be the unique and all-inclusive event which Catholic-minded Christians believe it to be, then the significant field of evolution has definitely shifted, not only from the organic to the human, but from the human to the Christian. The universe is Christo-centric, not only in its original creation, but in its redemptive re-creation. The Incarnation, bridging the gulf between Creator and crea-

ture, has established a new level, God-in-manhood. Mankind, raised and incorporated through Holy Baptism into that new level—for in Christ Jesus neither circumcision availeth anything nor uncircumcision, but a new creature—can at last attain the fellowship with the Father for which he was created. Our Lord's Nativity and Passion opened up new potentialities to human life, and evolution is no longer primarily concerned with the human race as such, but with the development of the blessed company of faithful people who have accepted the privileges and responsibilities of the baptismal covenant.

## III. SCIENTIFIC OBJECTIONS TO THIS THESIS

### A. The Incarnation Was a "Discontinuous" Event

#### 1. *Natural and Supernatural*

ALTHOUGH both the terms "natural" and "supernatural" have been used already in this paper, no precise definition of their meaning for our usage has been given.

As well in theological as in scientific experience, the phenomenal world (for Christians, the created world) appears to be an ascending series of levels of being, each one of which is characterized by definite qualities and potentialities. Such properties are "natural" to it, while endowments absent from it but inherent in some higher plane are to it "supernatural." Thus these terms *may* be construed in categories of relative value

(Professor Morgan—see 18 u—admits the validity of this usage), as for example we might say that properties "natural" to living matter are "supernatural" to lifeless matter, since they belong to a level which supplements, although it does not nullify, the lower.

But unless otherwise specified, in this essay "natural" and "supernatural" are not used in this relative sense, but exclusively of the human plane: properties which are at least potential in man as such are considered "natural" to him, while any supplementary endowments beyond those properties are "supernatural." It should be carefully noted, however, that as in the case cited above the "supernatural" fulfills, but it does not nullify, the "natural."*

* The terms "quality," "potentiality," "property," and "endowment" as here used should now be defined. By "qualities" and "potentialities," the writer means an inwardness and outwardness of "properties" comparable with what Professor Morgan treats as "intrinsic and extrinsic relatedness" (but *not* internal and external, see 18 j and 18 p). Professor Morgan restricts the term "property" to that which expresses extrinsic relatedness (see 18 j) but the writer has used it both here and elsewhere as a general term to express both intrinsic and extrinsic relatedness. To justify this departure from Professor Morgan's usage, one may urge that chemistry uses the term "property" in a general

Man's natural endowments belong both to the physical and to the spiritual worlds. His faculties of body belong to the physical world and can be studied from the standpoint of physical science. His faculties of soul do not belong to the physical world and cannot be so studied. All supplementary endowments of divine grace lie completely within the spiritual order, even when, as in the Sacraments, material channels are used.

But even though the material and the spiritual represent (in the traditional Christian thought which the writer has frankly accepted) disparate orders of being, there is

---

sense, since certain properties (like atomic weights) represent wholly intrinsic relatedness and others (like chemical "affinity") potentialities of extrinsic relatedness. To Professor Morgan's terminology, the writer has added "endowment" which is here used as a synonym of "property" except that it carries an entelechal connotation.

In Professor Morgan's terminology, each higher emergent "involves" concurrent events at lower levels; by his use of "supplements" or "fulfills without nullifying," the writer wishes to convey a similar idea. Conversely, for Professor Morgan the way these concurrent events run their course "depends" upon their relation to the higher emergent. This usage the writer has adopted, and in this paper "involve" and "involution" are used in Professor Morgan's sense, rather than in their usual theological implication. This dependence of the lower levels upon the higher is not exclusive of ultimate dependence upon God, which Professor Morgan accepts as a fundamental "acknowledgment."

no incompatibility between them. Man is an inhabitant of both worlds, and they are both linked to a common Creator. They were permanently joined by the Incarnation in a union perpetuated in the sacramental life of the Christian Church.

While "natural" and "supernatural" are not synonymous with "material" and "spiritual" (since certain spiritual faculties are natural to man) for substantially the same reasons as those outlined above, natural and supernatural are thoroughly compatible. Indeed from the standpoint of God as God, any distinction between "natural" and "supernatural" must apparently disappear, since all things must be "natural" to Him Who is the Source and Author of all being. If this be true, the Incarnation was indeed "natural" to God as a part of His creative plan, "natural" too in that it involved the lower levels of creation, but humanly speaking it was "supernatural" since the Son remained very and eternal God even when in time and space He truly assumed Man's nature of His virgin mother.

## 2. *The Incarnation Defined*

It is now desirable to define as precisely as possible the meaning of the term "Incarnation." Because the transaction expressed by this term, although an historical event, embraced within its compass all the past and all the future, it seems impossible not to use the word with varying connotations, but the context should make the precise meaning clear in each case. It may refer simply to the taking of our nature by God the Son as an historical event, once and for all accomplished, permanent and never to be repeated. In the more precise language of the Articles, "The Son took man's nature in the womb of the blessed Virgin of her substance: so that Godhead and Manhood were joined together in one Person, never to be divided," with the understanding that He "Who truly was crucified, dead, and buried, did truly rise again from death and took again His Body, with flesh, bones, and all things appertaining to the perfection of Man's nature wherewith He ascended into Heaven." In a less restricted sense, the Incarnation may be re-

garded as the goal of creation, because it involved all lower levels, and because Man, united to God in the Person of Jesus Christ, has already entered into his destined heritage. Finally, in the widest sense, the term is indicative of the consummation of creation, thus including all those destined to participate in our Lord's victory, a sharing future to us but present already to God.

We may note in passing that the view that everything in the created universe takes its real meaning from the Incarnation—a view implied by St. John and St. Paul and explicitly developed by St. Justin Martyr (*Apologia* i. 46)—does not ignore spiritual efforts which seem to us to lie outside its sphere. Surely no one could have foretold that strands of spiritual endeavor which seemed so widely separate as the prophetic message of the Old Covenant and the speculative philosophy of the Greeks would have been so closely interwoven in the new Dispensation. Similarly, we may well believe that strands which still seem equally remote will in God's providence be interwoven into

the completed fabric, will be incorporated into the Mystical Body where there is no longer that which divides, but Christ is all and in all.

### 3. *Discontinuity*

From the divine standpoint, then, the Incarnation was a natural event, but although the climax of evolution, it was not the inevitable unfolding of something already enfolded into the created universe, but the entrance of something new. To borrow a term from evolutionary science, it was "discontinuous" (see 5). By this description, the writer wishes to emphasize the fact that (according to the Christian belief) the Incarnation established a new level of Being which did not nullify but did transcend the merely human plane. It was *not* an emergence, the full and complete development of an inherent but unrealized potentiality, but the addition of a new factor. It constituted a phase of Being which appeared in but did not epigenetically arise from, the human plane, and it is not explicable in terms of an order lower than itself.

The writer has deliberately stressed this idea of discontinuity because it is essential to the Christian estimate of the Incarnation. Yet in an attempted synthesis, a conception at variance with most of the best current scientific and philosophic thought must be carefully scrutinized. Does science show in the naturalistic universe discontinuities analogous to what is here claimed for the Incarnation? The writer believes that it does; that the relation between the lifeless and the living furnishes one parallel, and that between chemotrophic and phototrophic nutrition another. These suggested parallels are considered in the two following sub-sections.

### 4. *The Living and the Lifeless*

Since the days of Lyell in geology and Darwin in biology, uniformitarianism has been the hall-mark of the one, and evolution of the other, so that "discontinuity" seems to strike at once a discordant note. Even so, not many years ago a statement appeared in the *American Naturalist* (see 7) that concepts of discontinuity are quite as widespread in

science at large as are those of continuity. This generalization, more extreme than the writer would have made, he does not wish to press; but he does wish to emphasize that in the present status of scientific knowledge, the relation between the inorganic and organic realms furnishes a striking parallel to the discontinuity between the human level and that established by the Incarnation.

"The physical world is a combination of substances acting according to a certain set of laws of force and energy, the biological world is composed of the same substances, but the laws of action are not the same. . . . To the present time at least these two realms are to us incommensurable, and we have made no progress in measuring or explaining one by the other" (see 17 c). If these statements are scientifically true—the writer believes that they are; the somewhat "old fashioned" use of "force" does not seriously affect their validity—then the discontinuity of the Incarnation seems greater than, but comparable with, this discontinuity presented by physical science. If it is reasonable to hold,

upon what seems satisfactory evidence, that there has been superimposed by emergence upon the world of inorganic nature, a biological realm, not measurable by the former and yet involving it, it seems equally reasonable to hold—if the evidence seems satisfactory—that an order which we may call God-in-manhood has been superimposed by "ingredience" upon the human, not measurable by the latter and yet involving it.

In this paper, "ingredience" always signifies a coming in from without, since the physical world (or the physico-spiritual world of emergent evolutionists) is not regarded as a closed system, and is contrasted with "emergence" which always means an epigenetic development from within the system. It is our contention, then, that the Christian postulate of the Incarnation as supernatural to humanity is analogous to what science discloses of a protoplasmic world "supernatural" to the non-living.

Nevertheless this presentation will meet with criticism from quite different quarters. On the scientific side it will surely be urged

that the unbridged gap between the inorganic and the organic has been unduly stressed and that the science of the future will eventually bridge it. To such criticism, the writer can best reply that, as stated earlier, our problem deals only with such scientific data as are already established, seeking to correlate them with the facts on which Christianity rests. Surely it is beyond dispute that science today, whatever its expectations for the future, presents us with a substance called protoplasm, absolutely unique and absolutely distinct from the non-living world. Primitive man could turn that living protoplasm into lifeless matter, less efficiently but quite as effectively as a more scientific age; but we seem quite as impotent as he to restore the life which we have taken. We do indeed know a great deal about the nature and properties of protoplasm; we do indeed know a great deal about the materials from which it is built up. But synthetic protoplasm is not in today's chemistry, and toward bridging the gap between protoplasm and non-protoplasm no *certain* progress has been made.

Although any interpretation based on the present status of a changing science is admittedly tentative, so long as natural science presents us with an unbridged gulf between the lifeless and the living, so long are we justified in treating that discontinuity as analogous to the difference between humanity in itself, and humanity as linked to God through the medium of the Incarnation.

A second criticism which might be raised by theologians, or others who believe that science will eventually bridge the gap between the non-living and the living, is that the collapse of the analogy suggested above will result in a serious weakening of religious faith. This fear seems to the writer quite without foundation, for such a gap is entirely unnecessary to the Christian apologetic. Any conception of a well-marked distinction between the lifeless and the living is comparatively recent, since the frequent occurrence of spontaneous generation was universally accepted until very recent times. The complete experimental disproof of abiogenesis was not fully demonstrated until a period

well within the memory of people now living.

Certainly, in the minds of the authors of Genesis, thorns and thistles arose spontaneously from the earth, and no plant life needed to be conserved on the ark during the deluge. Christian theology took shape in the midst of similar views, and creeds formulated during this period would doubtless be compatible with a biology which reaffirmed (though somewhat less crudely) the principles underlying an acceptance of spontaneous generation.

A third criticism which it occurs to the writer might be made from the standpoint of universal correlation, is that the new level here postulated, God-in-manhood, has no distinguishing physical criteria. But under our acknowledgments, such universal correlation has been ruled out, for while it is admitted that transactions on the spiritual plane may have material correlates, as they do in the Sacraments, the universal necessity of such correlation is denied. The sacramental regeneration of Christian Baptism is taught as a spiritual, not a physical, rebirth.

We may note in passing that even between the living and the non-living, physical criteria may in some cases apparently be wanting. For example, germination *tests* are necessary to determine the vitality of seeds. In such a case, differences of wholly intrinsic relatedness can be detected only by observing differences in the potentialities of extrinsic relatedness.

5. *Prototrophic and Metatrophic Organisms*

While some scientists believe that the original protoplast was a phyto-zoö-flagellate (see 12), the present trend of opinion views the primitive or prototrophic bacteria as survivals of a pre-chlorophyllic stage, rather than as degenerate cyanophyceans, so that "historically chemosynthesis . . . preceded photosynthesis" (see 3). These bacteria oxidize inorganic compounds, using the energy thus liberated for their life processes. Somehow and somewhere plant physiology was revolutionized by the development of chlorophyll or a chlorophyll-like pigment, and the energy of the sun's rays was directly

utilized for the building up of complex molecules whose stored up energy might subsequently be drawn upon.

In other words, botanical history indicates an initial stage where plants depended upon the potential energy of inorganic compounds. The subsequent development of a chlorophyll-equivalent made directly available for organic use the radiant energy of the sun.

Is not the Christian conception of the Incarnation, which, supplementing man's natural endowment, has made possible his spiritual evolution into conformity with the divine, strikingly parallel with a biology wherein an availability of radiant energy, supplementing a lesser supply, has made possible a physical evolution culminating in types incomparably higher than prototrophic schizophytes?

## B. The Virgin Birth

There is today a widespread feeling that loyalty to biology precludes acceptance of the Virgin Birth. Not only does the writer consider this opinion erroneous, but he also

feels, notwithstanding the fact that the Virgin Birth involved transactions in the visible world, that properly a philosophical rather than a biological problem is raised. For, as is shown below, the Virgin Birth is acceptable only when correlated with the Christian doctrine of the Incarnation.

It is Christian teaching (1) that body and soul belong to different orders of being and (2) that the soul is both spiritual and substantial, that is, the soul is a principle capable of subsisting in itself and is not intrinsically dependent upon the body (see *Catholic Encyclopedia, s.v., Soul*). Toward such teaching, science as such must necessarily be agnostic, but scientific philosophy seems openly hostile. By scientific or naturalistic philosophy, the writer means a philosophy which rejecting revelation professes to be built on science and the acknowledgments which it logically suggests. Such philosophies seem to deny (in the sense in which Catholic-minded Christians receive them) both the substantiality and the spirituality of the soul, and to regard life and mind and spirit as merely

the expression of a certain intrinsic relatedness, which may be named as we name "solidity" or "liquidity" without postulating for them any real separate existence as such.

It is further the Christian teaching (3) that God, although immanent within the created universe, also transcends it, so that He can work from without, as well as from within the physical world. The phraseology is not especially pleasing, but since the wording has been chosen for him, the Catholic-minded Christian does not hesitate to affirm his belief that there can be irruptions of the supernatural into the natural. Here again science as such is necessarily agnostic, but on this point also scientific philosophies seem to deny the conception of God as transcendent Being, and therefore (denying the possibility of supernatural ingredience into the natural) to reject also the concept of the Incarnation itself.

To pass now to the scientific findings with which these Christian postulates must be correlated, we find the biological teaching that this earth is peopled with human indi-

viduals who have come into this world under laws of biparental reproduction, a rule to which science admits no exceptions.

With this generalization, Christian theology is in complete accord, but supplements it with the teaching that each human individual is a human self or person in whom subsists a human body derived from its parents by physical generation and a reasonable soul, immediately created by God (presumably at the time of conception, although the exact moment of creation is not authoritatively defined). Christian teaching therefore supplements, but does not contradict, scientific fact; it is, however, hopelessly at variance with the contradictory type of supplement suggested by philosophical naturalism.

While the Child of Mary was true Man, of a reasonable soul and human flesh subsisting, the Church also teaches that, because the Divine Word took in every respect the place of a human person, the Sacred Humanity was not *per se seorsum subsistens*. By the Incarnation, two whole and perfect natures, Godhead and Manhood, were permanently

joined together in one Person. For Christians, therefore, the birth of Jesus was obviously a unique event, which, although accomplished in time and space relatedness, is not susceptible of analysis by science nor the scientific method. Unless it can be shown to be biologically impossible, criticism of the Virgin Birth must be on philosophical grounds in connection with the Incarnation itself.

But although the primary question is therefore one of philosophy, biology may not be overlooked in this discussion. Does the Virgin Birth which Christianity postulates so innovate on the normal course of nature as to be *a priori* improbable? The writer thinks not.

Cases of the development of unfertilized eggs, technically known as "parthenogenesis," are of common and normal occurrence in many species, both plant and animal. They are accepted as "natural" simply because they are clearly demonstrable. Science does indeed reveal a chromosome mechanism that makes it clear that an unfertilized honey-bee egg, if it develop at all, must develop into a

drone, but (so far as the writer can see) offers no explanation why the unfertilized egg of a bee can develop into an *imago* when the unfertilized egg of a beetle cannot.

Biological data, then, may be summarized by saying that in most cases the higher animals have developed from eggs, stimulated to such growth by fertilization. In some species (notably among the insects) the eggs normally develop without such stimulation. Finally, parthenogenesis may be artificially induced in certain forms (such as the echinoderms) under experimental conditions where it would not normally occur, some sort of mechanical stimulus evidently taking the place of fertilization.

Biology then (1) postulates development after fertilization as the norm, recognizing a few exceptions to this law on the natural plane, but (2) postulates biparental reproduction for human generation for a norm to which it knows no exceptions. These two postulates the Church equally accepts as wholeheartedly as biology, but further states (3) that once as a unique event Manhood was so

born into the world that It ushered in a new level of Being, God-in-manhood. Catholic-minded Christians therefore believe it both necessary and fitting that their Lord's birth should have been unique: necessary, to preserve intact the scientific law of human generation; fitting, that she who is blessed among women should alone be owned as Mother and Maid. Their belief supplements but does not contradict the findings of biology. The conception of the Sacred Humanity was unique, but once conceived It obeyed the universal laws of human development. Because It was a real Humanity, the Incarnation, although an ingredience from without, involved, like a new level of wholly emergent order, the lower levels which depend upon it for their functioning.

Since the uniqueness of the Sacred Humanity is its centering in a divine Person and not in a human self, it seems most fitting that Its generation should have been partly like, and partly unlike, our own. The conception of that human flesh was virginal, but the development was according to natural law. Be-

yond the statement that the method which God chose seems most congruous, it is neither reverent nor helpful to discuss further the "how" of the Virgin Birth. For those Christians who accept under acknowledgment the Holy Ghost as very and eternal God, St. Gabriel's annunciation to the Blessed Virgin, "The Holy Ghost shall come upon thee," seems the clearest explanation of this mystery which the human mind can apprehend.*

Our position may be summed up by saying that those who assert that, whatever He may have been, Jesus was *not* Incarnate Deity, must consistently deny the Virgin Birth, for their presupposition sets aside the only ground which makes such a belief rea-

* A position which some Christians claim to hold, the acceptance of the Incarnation but the rejection of the Virgin Birth, does not seem to the writer logically sound. If there has been any such Incarnation of Deity as to establish a new level of Being, that level cannot be interpreted in terms of a lower order any more than protoplasm can be explained in terms of inorganic physics and chemistry. Catholic-minded Christians do not stress the Virgin Birth as a primary evidence but as a secondary explanation. That is, they do not argue "The Lord Jesus was born of a Virgin and therefore must have been Incarnate Deity," but rather, "The Lord Jesus was Incarnate Deity, and therefore His Birth must surely have been unique."

sonable. Conversely, Catholic-minded Christians are equally bound to insist that the birth of Jesus was necessarily different from a merely human birth. That the hypostatic union of the divine and human natures in our Lord was wholly governed by laws whose operation invariably results in the personal manhood of a human self is for them unthinkable. For Deity to become incarnate as the son of St. Joseph and St. Mary would involve a violation of natural law inconsistent with the Church's avowed position. So fully does she recognize the validity of science in its own field, the thought of the generation of the Sacred Humanity by the natural laws of ordinary human reproduction would be for Churchmen quite unacceptable, even aside from revelation. For while the Church teaches that ingredience of the supernatural may supersede the workings of the natural order, the latter is not invalidated; the operation of natural law may be temporarily suspended, but it is not permanently annulled or destroyed. Christian teaching is not contrary to a science which

deals only with human generation, but it is at variance with any sort of scientific naturalism or other philosophy which rejects Chalcedonian Christology as dramatic mythology carried over from the childhood of the race.

It is obvious that *mutatis mutandis* the arguments here presented in behalf of the Virgin Birth are equally valid for the Physical Resurrection of Jesus. Consequently this topic is not discussed at length. We have claimed that the conception of the Sacred Humanity was a unique event, but it was no less unique for Incarnate Deity to submit to human death. Our attitude toward the Passion and Resurrection of the Lord is correlated, not with our attitude toward scientific investigation of human death and dissolution, but with our religious estimate of what happened on the Cross. The uniqueness of the event is the final criterion; was or was not Jesus right when He said: "I lay down My life that I might take it again. No man taketh it from Me, but I lay it down of Myself. I have power to lay it down and I have power to take it again"?

## C. Miracle

Science seeks to interpret events as they occur in the natural world on a mechanistic basis. Its method is to trace in the natural world a definite series of antecedents and sequences, describable in terms of consequential causation. Such a position traditional Christianity respects, and accepts this naturalistic explanation as completely valid within its own sphere. But (1) it insists that such an explanation is incomplete, and (2) it denies that all transactions which have taken place and are taking place, on the phenomenal level, are susceptible of explanation in terms of the natural order only. Therefore, as was the case above, the root problem which the Christian acceptance of miracles raises is not one of science but of philosophy. Whether it is, or whether it is not, reasonable to hold that what we call the workings of natural law may, under special circumstances, be modified by operations from outside of nature, depends not on our attitude toward the established truths of science, but on our philosophical presuppositions as to

the complete adequacy of scientific description.

From the Christian point of view, the consequential causation manifest in the natural order is an expression of the unchanging Will of God, its Creator and Upholder. "He commanded and they were created: He hath made them fast for ever and ever: He hath given them a law which shall not pass." God as immanent works within His creation, and the expression of such working we call (as we apprehend it) "natural law." But this is not God's only way of manifesting Activity, for as Perfect Being, independent of creation, He can and does work transcendently from without as well as immanently from within. There is no conflict in these workings for they are equally expressions of the one Divine Will, manifesting Activity in this way, or in that. Such Activity should not be construed in terms of temporal sequence, for just as Jesus is in all His activities at one and the same time perfect God and perfect Man, so God is simultaneously and continuously immanent within and transcendent without, creation.

To say, as we do in chemistry, that the properties of water differ from those of hydrogen and oxygen and cannot be described merely in terms of its constituent atoms, is equivalent to the generalized statement that, at any given level of emergence, the properties of that level are not explicable merely in terms of lower orders, because a new supervenient relationship has appeared. Similarly in the Christian view divine Ingredience from without, the activity of God manifested transcendently does not invalidate natural law (the activity of God manifested immanently) even when it modifies the course of events. One does not mean to infer that God's immediate working from without nature is of higher order than His mediate working from within (since both are manifestations of divine activity) but rather that just as when proteins are incorporated into living protoplasm, this new relationship supersedes but does not invalidate the laws of protein behavior as such, so also, because a new factor of relationship has supervened, divine intervention from without supersedes but does

not destroy what we call the workings of natural law. This Christian interpretation of miracle may be well illustrated by a consideration of our Lord's first miracle at Cana when He turned the water into wine.

In some sense doubtless it may truly be said that science is familiar with the turning of water into wine. Plant physiology describes certain processes wherein water is built up into sugar by photosynthetic combination with carbon dioxide, and others wherein this same sugar may be fermented by the enzyme action of certain micro-organisms into alcohol and carbon dioxide. If the particular sugar solution fermented is grape juice, we call the product wine. Water has indeed here been turned into wine, as St. Augustine pointed out so many centuries ago, but neither science nor the Christian religion would describe this action as miraculous, since there has always been traceable in the natural order a definite series of antecedents and sequences.

Nevertheless Christians do believe that such transactions in the natural order as have

just been described ultimately depend upon God quite as much as those actions which they consider miracles. We do not call the above synthesis a miracle because therein God is working mediately; we trace in the natural order steps whereby the wine is formed through created agencies, first probably an angiosperm, and second an ascomycete.

But when God works immediately and not through created agency, we speak of "miracle," because His action is (from our standpoint) direct, and there is no traceable series of antecedents and sequences. Because the Sacred Humanity subsisted in a divine Person, God worked through It immediately, and miracle is therefore characteristic of the Incarnation. Catholic-minded Christians recognize divine Activity in the world both as mediate and immediate; they regard the manifestation of this Activity on the visible plane as usually mediate; but under exceptional conditions which, though exceptional, are never arbitrary, chaotic, or invalidating, they recognize immediate Activity,

which they distinguish from the mediate or "natural" law, by calling it "miracle." Of such nature was the miracle of divine fiat, which changed at once, directly and immediately, the water into wine, at the wedding feast where Jesus manifested forth His glory.*

Obviously human persons can so intervene in the world of nature as to change its course more or less completely. (It seems to the writer that this at least must be admitted even by those who philosophically deny the Christian connotation of "personality.") Yet although this intervention introduces new and modifying factors, it does not destroy natural law, which resumes its "normal" course whenever the innovating factors cease to operate. In like manner, Christians believe, God may so intervene in His world as to introduce new and modifying factors with-

* "Natural law" and "miracle" are names which we give to Divine Activity mediately immanent or transcendently immediate, when it *primarily* involves the natural order of the visible universe. Sacraments are "effectual signs of grace by the which God doth work invisibly," but although supernatural are not miraculous, because the outward and visible sign is secondary, and the inward and spiritual grace of which they are the channel is of primary importance.

out invalidating natural law, although it may be temporarily superseded. Thus, for example, they believe that the Sacred Humanity was miraculously conceived by the immediate act of God the Holy Ghost, but that It followed natural law in Its development. They recognize that in infancy our Lord depended upon St. Mary as would any human child upon its mother, and the Holy Gospels record that, conforming to true humanity, Jesus increased both in wisdom and stature, and that at times He was physically so wearied as to feel the need of rest.

For Christians, there is then from time to time what we may call divine intervention in the affairs of the physical universe, but this is no real "intrusion" of God into a world from which He is normally absent, since underlying all things and giving them fundamental unity is the unchanging Will of God, the secret but sole Cause and Force of all that is, has been, or shall be. This Will (or so it appears to us) manifests itself now in one way, now in another. Like natural law, miracle is orderly, and the order of both is

of God. Such an explanation is reasonable on the premises of Christian tradition, and is perfectly consistent with a due regard for science. It is admitted that such an interpretation can hardly satisfy those who reject as untrue the very postulates on which Catholic-minded Christians base their conclusions, but it seems clear that such rejection is based on metaphysical and not on scientific grounds.

### D. Christian Prejudice

Not only is the Incarnation looked upon with disfavor today because it seems a divine intervention inconsistent with natural evolution; not only are the Virgin Birth, which Christian dogma postulates, and the miracles which it accepts, rejected as inconsistent with science; but there is a widespread feeling that the credal requirement of the Christian covenant is a fatal barrier to honest and fearless thought. Is the viewpoint of a Christian so prejudiced as to invalidate his outlook?

According to Sir Richard Gregory, "The methods of science are pursued whenever ob-

servations are made critically, recorded faithfully, and tested rigidly, with the object of using conclusions based upon them as stepping stones to further progress. They demand an impartial attitude towards evidence and fearless judgment upon it" (see 8). In spite of his presuppositions, a theologian can pass impartial, fearless, and critical judgment upon any evidence presented, just as can a scientist in spite of *his,* for it is on such judgment, not on blankness of mind, that logical thinking depends.

There is a small but extremely significant fresh water animal known as *Hydra,* which stands intermediate in structure between the strictly one-celled types and the triploblastic forms. Presumably, such an organism is a not greatly modified survival of some very primitive type. Can one help a feeling that the independence of each of its cells in respiration is "reminiscent" of protozoan ancestry? Can an animal with both intracellular and extracellular digestion (the one characteristic of the Protozoa, the other of the Metazoa) fail to suggest a possible method of evolu-

tionary transition from one type to the other? Does not its diffuse network of nerve cells suggest at once a rudiment capable of integration into the centralized nervous system of an arthropod or vertebrate?

But if *Hydra* cannot be studied in isolation from the rest of the animal kingdom, surely a Christian is justified in urging that his religious background does not prevent him from making a true estimate of the world about him. Indeed, the analogy suggests that he is probably more intelligent in his interpretations than those who disregard the data of revealed religion. If it is legitimate to interpret *Hydra* in evolutionary terms in relation to a larger whole, Christians are certainly free to see in the visible universe an image of the invisible, thus linking its present with its past and with its future, discerning in God's creative plan the fundamental unity which philosophic thought requires.

## E. Mechanism

It has been shown above (so the writer hopes) that belief in the historic Christian verities is not inconsistent with a wholehearted acceptance of the data presented by today's biology. Yet the trend of that biology is unquestionably mechanistic. Is biology about to become less compatible with Christianity? The writer thinks not.

Most biologists would doubtless agree with the statement: "The question before us is not the 'why' of the living organism but the 'how' of its working" (see 23), or the position that "the question 'What is life?' is one with which the biologist as such has no concern" (see 18 c). Few if any would dispute that "there is a factor in the fertilized egg which divides the cells into new ones and arranges them in definite order so as to produce a predetermined form and carry on predetermined functions" (see 17 b), or that such study "is a very interesting domain to explore but belongs almost entirely to the future" (see 4).

But in spite of this apparently general

consent, precise definition of this vital factor would (the writer feels sure) range most biologists on the side of a philosophy which would define it as "a new intrinsic relatedness working in the organism *ab intra,*" whereas Catholic-minded Christians would have in mind "some sort of hormic entity possessing the organism *ab extra.*"

Biologists object, and in the writer's opinion with justice, to any such hormic doctrine of "entelechy" as invalidates their science; to an "anima" which so possesses an organism as to interfere with its natural functioning. A scientific vitalism of this sort they reject in favor of a scientific mechanism. But such a mechanism, of scientific rather than philosophical interpretation, is perfectly compatible with Christian doctrine. Traditional Christianity freely admits that the human body is part and parcel of the natural order; "dust thou art and unto dust thou shalt return" is a law which still governs humanity. This human body can be studied as such and its physical workings explained along mechanistic principles in naturalistic terms. Cath-

olic-minded Christians do not reject reasonable interpretations in mechanistic terms of what is observable in human physiology, such conceptions for example as dynamic equilibria and reversible responses. Their theology does not postulate that digestion is a function of the soul or that a regulatory hydrogen-ion concentration is an error of mortal mind. In the quaint phraseology of the Articles recently given such prominence, theories of buffer solutions seem neither "superstitious nor ungodly," nor is the teaching that the heart beat is due to the interaction of calcium and potassium ions, "plainly repugnant to the word of God and the custom of the primitive Church."

A scientist might well study a cathedral, stone for stone, in the light of engineering, physics, and geology. Yet his scientific and mechanistic description, thoroughly valid within its own sphere, would utterly fail to convey the aesthetic appeal of the building, for beauty is of an order not explicable in mechanistic terms. Yet the beauty of the cathedral does not interfere with the physical

existence of the latter or invalidate its scientific description, even though such description is far from exhaustive.

In an analogous manner, a description of the human body and its functioning in terms of mechanism may be indisputably correct, but utterly inadequate in its terminology to convey the Christian idea of individuality. For Christians believe that entelechy of a different order does possess the body. While they also believe that body and soul interact, they admit that this interaction does not interfere with the physical workings of the body as such, nor invalidate its description, for the purposes of science, in mechanistic terms. Revealed religion does not deal with the "how" of bodily working, and for knowledge of this sort, Christians, like all other human beings, are dependent upon the findings of the natural science, which they accept, or should accept, with profound gratitude. Nevertheless, in view of opposing philosophical interpretations, only too often put forth in the name of science, they must equally stress—and sometimes almost to the

point of controversy—that the "why" of existence is not ascertainable by the scientific method. There is nothing in mechanistic biology which Christians need reject; but they must insist that such description is only partial, and even that, when compared with the divine revelation of the Christian faith, it is relatively the less important part.

Christians interested in these relations should note in passing that certain recent criticisms of modern biology as inconsistent (because while denying that abiogenesis is occurring today it postulates that it did occur in the remote past) are unjust, because an explanation of this position can readily be given (see 3). Christians should frankly make this admission even though it gives the biologist, as such, reasonable ground for rejecting the idea of life as entelechy. For this is merely to recognize a fact only too obvious today, that the study of God's self-revelation in nature is not sufficient of itself to compel acceptance of the Christian creeds. It seems clear that all which we can hope to do as Christians is to construct a synthesis in which

there is due recognition of the facts of science, properly correlated with what is of faith. We may not claim that Christianity is the only, or even the most apparent, explanation of scientific data considered in and of themselves, notwithstanding our confidence that it is the ultimate and final interpretation to which all right-minded people will some day attain. The fact that to many people historic Christianity does *not* seem the obvious interpretation of current science should not surprise us, for revelation is today largely disregarded, and we may suppose that if the human mind were able to construct a complete, correct, and satisfactory philosophy of religion from science and the acknowledgments which it suggests, there would have been no need of that divine revelation on which Christians base their life.

# IV. EMERGENT EVOLUTION

## A. General Bearing of the Doctrine

BETWEEN the Christian religion and evolutionary science, the writer believes a synthesis possible when the latter is interpreted in the light of the purposive explanation which the former supplies. It remains to compare this view (already set forth in earlier papers by the writer in substantially its present form—see 25 a and 25 b) with the interpretation set forth so compellingly by Professor Morgan in the Gifford Lectures for 1922 and 1923.

The general trend of this philosophy is expressed with remarkable brevity and insight by Professor Jennings of the Johns Hopkins University, from whose exposition (see 13) the following paragraph is quoted:

> "The doctrine of emergent evolution . . . holds that . . . new things and new modes of

action distinguish the living from the non-living, the sentient from the non-sentient, the reasoning from the non-reasoning, the social from the solitary. . . . It holds that the properties of living things depend on those of their physical constituents *when the latter are in living things;* the activities of thinking beings on the action of their physiological constituents when the latter are part of a thinking being. . . . But it contends that the constituents of each grade acquire new properties, new modes of action, in becoming part of the 'emergent' thing of 'higher' grade. It holds that the physics of atoms, of molecules, is not fully known till they are studied in the living as well as in the non-living. It holds that the physiology of bodily constituents separated from the living organism is in essential respects diverse from their physiology *in* the living organism. The constituents of the emergent unit partake of the properties which they showed before becoming parts of that unit; but with additions or modifications. The properties of the emergent unit itself depend on these altered properties of its constituents."

The writer has quoted this paragraph, not only because it is so clear and brief a description of emergent evolution, but also because it is *apparently* so easy to correlate

with Christian teaching. May we not say, "Just as 'the constituents of the emergent unit partake of the properties which they showed before becoming parts of that unit,' so very and true Manhood was assumed by the Eternal Word"? Or again, "Just as these properties show 'additions or modifications,' the Sacred Humanity, centering not in a human self but in a Divine Person, is raised to a new level of Being"?

Such an interpretation was indeed the writer's first reaction, but critical re-examination has convinced him that it cannot stand. Its validity hinges on the strict definition of terms, which have an exact and technical meaning in the philosophy of emergent evolution, somewhat different from their usual connotation. Doubtless the Christian trips most easily on "additions," for he tends to interpret the word in its etymological sense which certainly suggests distinct animistic reference to a "giver"; he has therefore in his interpretation introduced a conception of "from without-ness" which it is the very intention of emergent evolution to exclude.

Moreover, in emergent evolution "properties" refer only to extrinsic relatedness, and therefore the epigenetic emergence of a new supervenient intrinsic relatedness wholly within the system is sufficient to account for additions to, as well as modifications of, properties which appear in extrinsic relatedness only. For example, when carbon, hydrogen, and oxygen "emerge" as sugar, what has emerged is a new intrinsic relatedness between certain atoms, and the additive properties of their potential extrinsic relatedness, although unpredictable on the lower level, have emerged *within the system*. This is in striking contrast to an Incarnation *from without*. Further, just as the emergence of sugar does not mean the appearance of "sugarness" as an independent entity, neither (in the philosophy of emergence) does the appearance of protoplasm mean the existence of life (or mind or spirit on the higher levels) as a separate hormic entity. Clearly then the parallelism between emergent evolution and the Christian faith is less extensive than at first one had hoped.

## B. Professor Morgan's Thesis

In building up his doctrine of emergent evolution, Professor Morgan accepts under acknowledgment (1) a system of physical events intrinsically existent; (2) God as the ultimate source on which emergent evolution is ultimately dependent; and (3) unrestricted correlation, that is, all systems of events are in their degree psycho-physical (see 18 r). Evolution is the name we give to the comprehensive plan of sequence in all natural events, which, historically viewed, appears to present from time to time something genuinely new, i.e., *emergents,* to be accepted with natural piety. Through resultants (additive characters) there is continuity in progress and through emergence, progress in continuity (see 18 e). This emergence may be presented in the form of a pyramid based on an acknowledged physical world in which spatio-temporal relatedness is ubiquitous and which is in its degree psycho-physical, and from which emerge in due course life, mind, and spirit, all emergence being within the pyramid without divine intervention at sporadic

points (see 18 g). Not only is there unrestricted correlation but involution and dependence are recognizable throughout: that is, any level in the pyramid of emergent evolution *involves* concurrent events at lower levels, and the specific way in which these events run their course *depends* on the new kind of relatedness present (see 18 h). "In our pyramid the ultimate basis . . . is a world of purely physical events (and their correlates) in changing spacial and temporal relatedness. On this all the emergent part of the pyramid is built up in an order of ascending levels, each one of which involves those that lie below it. But . . . at any given level the manner in which natural events run their course depends on the kind of relatedness supervenient at that level" (see 18 n).

It should be stressed that what is emergent is a *new kind of relatedness,* a supervenient and enriching one of which there are no instances at lower levels, but in the sense of entelechy both vital*ism* and anim*ism* are excluded, and "relatedness" is used to replace the idea of "force" in Newtonian

physics. Life is a name for vital relatedness as mind is for conscious relatedness, but they should not be given the status of separate entities (see 18 i). "Hormic endeavor does not come into the picture" (see 18 x).

Within the pyramid is nisus toward deity along one specific line of advance, for "outside the realm of appearance in the body of our pyramid is the infra-vital beyond of Materialism and the supra-personal beyond of Immaterialism." The comprehensive plan of sequence in natural events is evidence of Purpose which implies Mind through whose activity the course of events is directed, or, in other words, God as the directive Activity on Whom the manner of going in all natural events ultimately depends. "Material reality within us under evolution is *sub specie temporis,* and Immateriality no less within us under ultimate Dependence is also subsistent *sub specie aeternitatis*" (see 18 k). But relatedness is nevertheless essential and God does not exist in isolation from the world—that is, deity is an emergent quality, so that while God as Being is the nisus directive of

the course of events, in Mr. Alexander's language (*in* Mind v. 30:428): "God as actually possessing deity does not exist but . . . is always becoming" (see 18 s).

> "The Acknowledged Activity in Divine Purpose is monistic to the core. It is that activity which is manifested in *all* action . . . each according to its status. . . . The reality of Divine Purpose as objective is not *other than* but emergently *more than* the reality of the rational order of the cosmos. . . . In so far as there is progress and advance in the cosmos, God is All in all but in *diverse modes* and *degrees of manifestation*. . . . For us Divine Purpose is inclusive of *all advance*—physical, vital, mental, social, and in spiritual regard. Could we but reach the acknowledged limit there would be no 'super' beyond it. . . . It is in us as persons that Divine Personality is revealed . . . [for] to be emergent in some human persons falls within Divine Purpose. . . . [Especially] Divine Personality shines through the Unique Individuality of the Christ" (see 18 y).

## C. Emergent Evolution and the Christian Creeds

### 1. *General*

No brief summary is adequate for a review of two such volumes as Professor Morgan's, remarkable for their precision of definition and for the closely reasoned development of a difficult theme. Under an evolutionary monism, he presents a consistent picture of cosmic development in terms of emergence. The writer trusts that he has not misrepresented Professor Morgan's views, for he has closely followed his terminology and has quoted verbatim as far as possible. Nevertheless it is only fair to say that the writer has deliberately stressed points wherein the cosmology of emergence seems to him different from historic Christianity, that he has not indicated Professor Morgan's relative emphasis on the points discussed, and that some topics which Professor Morgan treats at length have been entirely omitted.

This is because, in the writer's opinion,

nearly if not all of the discrepancies between emergent evolution and the Christian creeds arise from a radical difference between what is accepted "under acknowledgment" by Professor Morgan and what is postulated as "of faith" by Christians. These acknowledgments should be treated at some length. Professor Morgan himself admits that his method of reasoning and interpretation would be valid if one started from a different set of acknowledgments (see 18 w) and even that all the observed phenomena and facts of science *as such* can as well be explained by "animistic" doctrine as by monistic hypothesis (see 18 v). "Naturalistic hypothesis is alternative to that of animism. . . . The crucial question for science is: For which of the two hypotheses is there preponderant weight of inferential support? That for philosophy is: Which accords best with a comprehensive schema of nature as a whole? There is also the question for religion: Which leads up to the wider and richer conception of God? Must we not admit that on all three counts opinions are

divided?" (see 18 x). It is on counts like these that Professor Morgan rejects, where the writer accepts, such animistic doctrine as has characterized all Christian teaching in regard to God and man.

In the following subsections Professor Morgan's acknowledgments are compared with what is explicit or implicit in the traditional creeds of the Christian Church.

### 2. *A System of Physical Events Intrinsically Existent*

This postulate of emergent evolution is at least superficially the same as that which the Church teaches. There is complete agreement that there is a physical universe independent of finite mind but ultimately dependent upon God. Nevertheless the interpretation of this ultimate dependence seems to bring out a sharp contrast. To Professor Morgan neither God nor the world have independent existence, for although God as Being exists, God as Deity is constantly becoming. The opening phrase of the Bible, "In the beginning God created," can be ex-

plained only by explaining it away in the sense of eternal creation.

For to Catholic-minded Christians, while the world is wholly dependent upon God, God Himself is absolutely independent of the world which is His creation. God as perfect Being is eternally unconditioned by anything outside Himself, for the universe in its continued existence, as in its creation, is ultimately dependent upon His Will. The concept of God's eternal Activity which modern philosophy expresses in the thought of eternal creation is for Christians far more satisfactorily sought in the eternal generation of the Son and in the eternal procession of the Spirit. One does realize, however, that for those who reject the doctrine of God as the Blessed Trinity, some sort of eternal creation concept is probably a necessity of philosophic thought.

But, at least, both emergence and the Christian faith postulate a system of physical events intrinsically existent, which can be analyzed by the scientific method and expressed in mechanistic terms. Such scientific

study has certainly made it clear that creation is a process. Emergence would say that the notion of creative act should be replaced by that of creative process; Christian interpretation, that the notion of creative act should be supplemented by the thought of creative act giving rise to process, reminding us that this line of thought is in harmony with the best Christian tradition.

### 3. *God as Ultimate Source*

It has already been hinted that despite a superficial similarity between this postulate and the Christian faith, interpretation brings out a deep cleavage. It seems to the writer that these differences are so great as to be mutually irreconcilable, for Professor Morgan rejects any sort of dualism in favor of strict monism, treats Personality in God as an emergent quality, and finds difficulty in the concept of divine intervention.

Catholic-minded Christians "still acknowledge, after deliberate weighing of relevant criticism, radical disparity of diverse realms of reality," and that "what in some way

characterizes one of the two realms of being does not characterize the other." Because they accept literally as revealed truth such sayings of Jesus as "Ye are from beneath, I am from above; ye are of this world, I am not of this world," their religion postulates "ultimate diversity of orders of being." All this Professor Morgan rejects in favor of a monism insufficient to satisfy the world view of historic Christianity (see 18 u and 18 bb).

Because Christians believe that there is One infinite and uncreated by Whom all else was made, they recognize and accept a primary dualism between Creator and creature. They also admit a secondary dualism between matter and spirit, body and soul, and although these may interpenetrate and interact, their unrestricted correlation is denied. Certainly revelation does not make clear the exact nature of the resurrection body, and it is possible that when our bodies are "clothed upon with our house which is from heaven" the distinction between material and spiritual will seem less sharp than it does under present conditions.

Such speculation is not without significance in the interpretation of an electron physics which makes "matter" less solid than it seems to common sense, particularly if the conjecture be true that in the sun matter is being broken down and converted into energy.

But even if the apparent dualism between matter and spirit be resolved, Christian teaching maintains that the absolute distinction between Creator and creature will remain clear and sharp throughout eternity. The Son, although equal to the Father as touching His Godhead, is less than the Father as touching His manhood. Even in the consummation of the beatific vision, God is distinct from the Saints in glory. God shall indeed be All and in all as monists believe, but in no such way as to confuse Divine Being with created nature.

It is also evident that the doctrine of deity as emergent, and Divine Personality as emergent only in human individuals, is contrary to the Christian belief that "there is one living and true God, everlasting, of infi-

nite power, wisdom, and goodness." Here, diversity of interpretation cuts very deep. Professor Morgan's statement (see 18 ee) "Divine Personality shines through the Unique Individuality of the Christ" is one which a Christian might make, but he would mean quite the opposite of what Professor Morgan intends. The latter's meaning is made clear by the context, and by the earlier sentence "The nisus toward deity on its strictly central line should culminate in one unique person at the apex of the pyramid" (see 18 l). Here our Lord's true Deity is treated as a quality epigenetic *within the pyramid,* and His uniqueness is assumed to be a supervenient *emergence* of deity more completely in Him than in any other. Exactly opposite is the traditional Christian conception, which insists on the separateness of our Lord's two natures, insists that the Sacred Humanity co-exists without confusion with His Godhead. Moreover, to Catholic-minded Christians the uniqueness of the Sacred Humanity is that it centers, not in a human self, but in a divine

Person; and that this was due, not to an emergence from within, but to an ingredience from without.

The Deity of Christ (in the opinion of historic Christianity) was not in any sense an emergence of *nisus* toward deity culminating in one unique person, but an ingredience of divine intervention, for God the Son *took* man's nature in the womb of the Blessed Virgin, of her substance. The Sacred Humanity, by its union with the Divine Word, was indeed lifted to a new level of Being, but the Word Himself remained unchanged through His Nativity, Passion, Resurrection, and Ascension, very and eternal God.

*If* Divine Purpose manifests itself *only* in the natural advance of the visible world, it cannot well "intervene" at any stage of that manifestation. On this count, therefore, as well as on others, Christians reject such a monism as denies distinction between Creator and creature. Because they believe that God transcends creation, they believe that (since all created levels ultimately depend upon God) He can act in any level

when and how He wills, from without as well as from within. That this position is reasonable from such a viewpoint has already been pointed out, so that it suffices to say here that in fact Christians do believe that God has so intervened from without, that for us men and for our salvation, Jesus Christ came down from heaven, and was incarnate by the Holy Ghost of the Virgin Mary and was made man.

### 3. *Unrestricted Correlation*

Unrestricted correlation of psycho-physical events, the acknowledgment that in some degree according to its status every physical event is also psychical, Christians emphatically reject; as well as its logical correlate "No mind without life, no life without a physical basis," for this involves an unqualified repudiation of the Christian conception of God and of the spiritual substantial soul. It is upon this acknowledgment that Professor Morgan is enabled to base a consistent explanation of the emergence of life, mind, and spirit *within* the pyramid, and

dispense completely with any sort of hormic doctrine.

Therefore, while Christians can admit (upon satisfactory evidence) that emergent evolution is an important factor in cosmic development; that organic evolution has resulted on the physical side in the development of the human body from the animal body; or that there has been an orderly evolution of the nervous system, they cannot consistently admit mental evolution in the sense in which it is commonly understood. "An evolutionary stage in the natural history of the psychical correlates of physical events" is not what they mean by mind, since they regard it as an entity "which enters the world with an original capacity for apprehending that world as a part of its inherent activity."*

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* We are indebted to Professor Morgan himself for this clear distinction between the doctrine of emergence and animistic hypothesis. His whole discussion of this point is extremely helpful; especially (in *Emergent Evolution*) his exposition of the threefold usage of "mind" on page 37; his recognition of the incompatibility between the concepts of mind as emergent and mind as entity on p. 105; and his consideration of restricted and unrestricted correlation on p. 199. Unusually helpful also (*in*

Universal correlation is rejected in this essay on the twofold ground that matter may exist without psychical correlate, as it does on the infra-vital levels, and that mind may exist without material correlate, for in the created order the ranks of angels and the holy souls in Paradise exist without material bodies, and God Himself is pure Spirit.

We have maintained here the traditional doctrine of the substantial, spiritual soul. But since such teaching is widely denied today, we should investigate the grounds of these denials to see if they invalidate the Church's position. In the writer's mind, these negations spring from two chief roots.

(a) Under the name of vitalism, entelechy has been scientifically invoked to explain material transactions on the physical plane, in such wise as to deny not merely the sufficiency, but the legitimacy, of mechanistic interpretation in science as such. Such a vitalism biologists rightly reject. But it has al-

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Life, Mind, and Spirit) is the commentary on hormism on pages 74-93, and the suggested steps for the re-statement of religious faith on pages 298-299.

ready been shown that the Church does not postulate this sort of vitalism. For the Church teaches that just as there is no confusion between the divine and human natures in our Lord, so the soul does not possess the body in such a way as to destroy its physical nature. The material body can be described in physical terms, and its functioning explained in terms of mechanism. The Church is only concerned to insist that, except in the limited field of the physical sciences, such description is inadequate. Christians can sympathetically understand that the unfortunate intrusion of metaphysical vitalism into scientific biology has left for the present a strong bias against any sort of entelechy, yet they cannot but feel that such a prejudice is really unintelligent and does not offer valid reason that the Church should recede from her doctrine of the soul.

(b) Newtonian physics introduced into science the idea of "force" which soon came to be looked upon as a sort of power working on and in the physical world *ab extra*. The general abandoning of such an idea and the

tendency to replace the term "force" by the idea of "relatedness" has had a natural reaction elsewhere. With the disappearance of "force," "life" and "mind" have been correspondingly reduced to signify "vital relatedness" or "conscious relatedness" operating *ab intra*. Thus philosophy reflects the scientific reaction of the newer physics, as well as the triumph of mechanism in biology. The writer believes that this is only a temporary reaction, but in any event it does not at all affect the Church's position, because centuries before Newton she taught her doctrine of the spiritual, substantial soul, a doctrine primarily dependent upon revelation, not upon science, ancient or modern.

## V. THE FALL OF MAN

IN this essay, the fall is treated as a temporary interference with the working out of God's creative plan, since the acceptance of the account embodied in the Christian tradition (an excellent summary may be found in Hall's *Dogmatic Theology*—see 10 b) is presupposed. It was a thwarting of Divine Purpose manifesting itself in the created order, and therefore has no *logical* place in an evolutionary interpretation: a thwarting which God apparently permitted, because seemingly the development of moral beings endowed with free will necessarily involved the possibility of a wrong choice so serious as to involve the whole human race; a thwarting which was temporary only because of God's overruling Providence.

Although the fall has no logical place in an evolutionary picture, nevertheless it can-

not be disregarded in a study which deals, not with the development of an ideal world, but with the actual world in which we live; a world whose final and highest development has been seriously retarded by the fall and its ramifications. For the Incarnation itself was probably delayed, and particular aspects of it certainly qualified, by man's failure to coöperate with Divine Purpose.

In such an interpretation as we are attempting here, the fall presents two real difficulties. Since the account in Genesis is admittedly symbolical rather than literal (as Origen, for example, clearly recognized: see *De Principiis,* Book IV, ch. 1, sec. 16), our knowledge of the fall is necessarily fragmentary rather than complete, general rather than detailed; and further, in contrast with an Incarnation which was the culminating event of cosmic evolution from which the whole process derives meaning, the fall was an interference with God's plan such as universally to incapacitate the entire human race for its true development.

Man's natural endowment consists of fac-

ulties of soul as well as of body, but of and by itself is insufficient for the perfect enjoyment of God which is his true destiny. Therefore when God created the first human souls, He bestowed upon our first parents a special endowment of supernatural grace, additive to their natural human faculties. This grace, conditionally bestowed, was necessary for their complete and highest development, and yet they forfeited this grace, because through wilful disobedience they failed to meet the conditions required for its continued possession. Thus they were left on what we have called the natural human plane, *with* their natural faculties of soul and body, but *without* supernatural endowment. This unfortunate accident Christian theology terms the fall, and refers to its subsequent effect upon the whole human race by the somewhat misleading term "original sin." Because our first parents lost the additive supernatural endowment, it follows that every human being subsequently born into the world has been the victim of a defective inheritance, in that he lacks the grace needed for his highest devel-

opment. (The Church does not teach that this grace would have been transmitted by physical inheritance; how it would have been transmitted is a speculative question of no present practical importance, the answer to which has never been included in the dogmatic definitions of the Church.) God did not leave man in this state of natural insufficiency. Just as our first parents, by forfeiting divine grace, involved the whole human race in their loss, so also our Lord, whose true Humanity equally involved the entire race, won back for mankind this grace, which, imparted to us in the baptismal covenant, supplements the inadequacy of our human nature and lifts us to the new level of Manhood-in-God.*

Yet the fall is not inconsistent with evolutionary interpretation, even though it has no logical place in its sequence. In the view of strict emergence, life is a new supervenient

* Heretofore the writer has referred to this new level of Being establishing by the Incarnation as "God-in-manhood." Reason and reverence alike suggest that the terminology be varied according to the point of view emphasized. He Who is Son by nature joined Godhead to Manhood; in us, who are sons only by adoption into Jesus, manhood is incorporated into God.

relatedness, which is universally correlated with what we call protoplasm to establish a new level. When protoplasm disintegrates, that new relatedness is lost and the character of living-ness disappears. This natural process which occurs concurrently with emergence is quite analogous with the view of the fall presented here. Man's nature apart from grace, while potentially righteous, is insufficient. A supernatural endowment of sufficient (but not irresistible) grace raised him to a new level, from which by loss of grace he reverted to a lower plane, somewhat as protoplasm, when vital relatedness disappears, "reverts" to a lower emergent level.

While the analogy pointed out above is probably valid, it is nevertheless incomplete since it disregards the "spiritual wounds" of humanity. The constituents of protoplasm act in perfect harmony with the natural laws of any emergent level whatsoever to which they may revert, whereas human nature by itself seems not merely insufficient but actually disordered. Western Christians have tended to explain this condition in terms of

spiritual wounds resulting from the fall, while Eastern Christians have tended to stress simply the loss of grace. An evolutionary explanation seeks to combine these two points of view.

The sensuality or affection of the flesh, as this disordering is technically called, may reasonably be regarded as an evolutionary survival carried over into humanity from a lower stage of development. But nevertheless the real problem which Christian explanation has to face is the universal failure to control these affections rather than their mere existence (see 22 a). On the view adopted here, man's inability to order equitably this sensuality is looked upon as a part of his natural insufficiency; that is, the possibility of rational control is considered as one of the additive endowments which man needed, and which (conditionally bestowed) was lost at the fall with the forfeiture of supernatural grace.

The primary result of the fall was a loss of supernatural endowment which left man in his state of natural insufficiency. This

shows up most clearly in the "affections of the flesh" which are an evolutionary survival of animal impulses inherited from lower organisms. But there are also secondary effects traceable in man's environment. (1) Man lives in a world which appears to be an imperfect world. This is explicable in terms of emergence by involution and dependence, since man's reversion from a supernatural to a natural condition would necessarily affect the whole natural order, because departure from perfection in the highest level would involve the lower levels dependent upon it for their functioning. (2) The results of the fall also show up, and much more clearly, in the sadly disordered environment which is man's social heritage, for here the cumulative effects of sin act as a great hindrance to the moral life. Such reference as the Lord made to Satan as the Prince of this world, and St. John's description of the world as lying in the evil one, clearly imply that in spite of ultimate dependence there is a certain organization of the world apart from God.

The writer therefore interprets the affec-

tions of the flesh as an evolutionary survival, natural indeed to man, but a survival which man cannot rationally control due to the loss of grace at the fall. Each individual is, however, further handicapped by "spiritual wounds" which are the inevitable result of interaction between the human soul and the very imperfect world into which it is born. They are in part simply wounds engendered by the struggles of the soul with a disordered social heritage which hurts and impedes it, but they are also in part psychological complexes such as the yielding of the members to sin invariably engenders. "When lust hath conceived, it bringeth forth sin; and sin, when it is finished, bringeth forth death."

These results of the fall, primary or secondary, have all been nullified, at least potentially, by the Incarnation and its extension in the Sacraments. The primary result, the loss of grace, is nullified by spiritual regeneration in Holy Baptism, in which a supernatural endowment of divine grace is bestowed, sufficient to rectify man's native incapacity. Spiritual wounds received prior to

Baptism are also healed. How, then, are we to explain (as Article IX clearly admits) that the "affection of the flesh" persists in the baptized? It is due to no defect of grace, but to the fact that the grace bestowed, not being mechanical in its operation, requires the active coöperation of the recipient. But, owing to the cumulative effect of sin and its dreadful work in the world, the life of grace is so difficult in the disorganized environment in which it must be lived, that the baptized (it would seem inevitably) give way at times before the assaults of temptation. We may indeed say further (since we are giving a Christian interpretation) that the temptations which press upon us come not only from our physical and social environments, but also from the activity of evil spirits in the unseen world. "We wrestle not against flesh and blood, but against wicked spirits in heavenly places."

In summary, the fall presents a twofold problem which an evolutionary interpretation must solve: it postulates a defective individual heritage for each soul born into the

world, and it postulates an imperfect world for it to live in. And it deliberately stresses these as positive, not negative, defects: that is, they do not represent *merely* an incomplete stage in development, an inevitable imperfection as it were in an uninterrupted path of evolutionary progress, but they represent a turning back, a reversal too serious to be naturally outgrown, a situation that ought not to be, a check in the creative plan. The evolutionary solution lies in the Incarnation, which has potentially (though not yet actually, if considered as a temporal process) solved both problems. Our deficient individual heritage is compensated by baptismal grace, fortified by the other Sacraments, which also provide for the healing of our spiritual wounds, whether they be received from the environment or be due to psychological complexes. In like manner the defective social environment was potentially solved by the establishing of a new world level in the Christian Church, although the definitive solution in time seems still to belong to a distant future. In this new world level,

all the created universe is or will be caught up. For it is apparently true that not only man but all lower nature is more or less disordered ("the whole creation groaneth and travaileth in pain together"). Just as each higher emergent level involves the lower which thus depend upon it for their functioning, so man, the highest order of creation, involved all the lower levels, which thereby depend on him. Because of such involution and dependence, the entire fabric of the physical universe was involved in man's fall; and it is by virtue of this same sort of involution and dependence that all creation is enabled to share, according to its status, in the redemption wrought by the Sacred Humanity.

Before we leave the subject of the fall, two other topics require brief treatment in connection with it: the evolutionary doctrine of sin, and speculation as to a prehuman fall.

*A.* There is today widespread acceptance of the evolutionary view that man's present condition is merely due to incomplete evolution, and that the present disorder, whether in humanity or its environment, will be

naturally outgrown. While such a doctrine accounts for man's present insufficiency, it ignores the fact that from the Christian standpoint sin is never merely animal impulse allowed to go unchecked, but must always involve in each case an act of the human will. From our standpoint, therefore, the evolutionary view of sin, while helpful up to a certain point (we have already built upon it twice in this section) is by itself hopelessly incomplete.

*B.* Between the traditional position of historic Christianity and the complete rejection of the doctrine of the fall, is the intermediate view of a pre-human fall. For such a postulate a strong case can be made out (see 22 b) which is not lightly to be dismissed. As we study nature we find many things difficult to reconcile with the concept of God as a loving Father. For example, do disease bacteria and poisonous serpents point to a pre-human fall which has more or less adversely affected the whole world order?

So far as we are aware, at least, bacteria and serpents are living in a universe which

is for them non-moral, and their life problems are wholly biological. Of these, the obtaining of food is primary. When one considers a rattlesnake in this regard—its elongated body with ribs and integument modified for rapid motion; the delicate adjustments of an intricate poison apparatus, with an extraordinary mechanism for the shedding and renewing of the fangs—one sees instance after instance of marvelous *adjustment to environment.* No less remarkable are the adaptations of parasitic organisms, especially the parasitic worms. It almost taxes credulity to believe that the life cycle of a liver fluke can be completed from a sheep to a snail and back to a sheep again. What delicate adjustments must be required in and between the stages for such an accomplishment! The writer has no desire to gloss over the difficulties which such facts raise (in the writer's mind they so weaken the witness of natural theology as to throw one back into greater and greater dependence on revelation) but certainly "it seems better . . . to speak of the parasitic condition as a specialization

rather than a degeneration or regression, especially since most parasites are marvelously adapted to their manner of life" (see 11).

For his part, the writer is unable to see the slightest parallelism between adaptations which result in adjusting organisms most intricately to their life habits and a fall which completely unfitted man for the realization of his proper life. May not parasitism and other such biological relations be better treated as incidental necessities of a balanced organic realm? Carbon monoxide must have been a relatively early chemical emergent, and yet the fact that it happens to have a greater affinity for the haemoglobin of our red corpuscles than does oxygen, and is therefore a dangerous poison to man, does not argue to the writer for a pre-organic fall; and a parasitism which probably appeared almost as soon as life itself (see 3) seems equally inconclusive.

On theoretical grounds also, a pre-human fall seems unacceptable to the writer. He is convinced that Professor Morgan has made

a permanent and valuable contribution to philosophic thought in his carefully worked-out teaching of involution and dependence; he is sure that Professor Morgan is right in postulating that the higher levels involve the lower, which depend for their functioning upon the higher. How *could* a pre-human fall adversely affect the human level, when involution and dependence work the other way? Would not rather the perfection of the higher level tend to correct any imperfection in a lower level dependent upon it, just as the sacramental extension of the Incarnate level corrects the imperfections (spiritual wounds) of the human level?

# VI. EMERGENCE AND INGREDIENCE: A RESTATEMENT

WE HAVE sought to establish a synthesis which does justice as well to scientific knowledge as revealed religion. We have not claimed that Christianity offers the only consistent explanation of the natural order (although we have indicated our belief that it is the only correct and satisfying one) nor that the synthesis here presented is the only Christian interpretation of evolution possible. The writer now wishes to restate his thesis as outlined in section two, in terms drawn as far as possible from the philosophy of emergent evolution as developed by Professor Morgan, because he has found that philosophy so helpful in clarifying his own concepts. To do so fairly is a difficult task because of the radical divergence between what Professor Morgan accepts "under ac-

knowledgment, with natural piety" and what the Christian Church postulates for her members as "of faith."

We may conveniently represent the visible order of creation in the form of Professor Morgan's pyramid, with the Incarnation as its apex, and the physico-chemical world of matter as its base. Our pyramid is modified from Professor Morgan's because we reject the doctrine of universal correlation; we do not believe that matter has any psychical correlate, nor that life, mind, and spirit have evolved *within the pyramid.* But within this pyramid there has been, under conditions of time and space, a long period of strictly emergent evolution, the epigenetic unfolding of what was originally enfolded, the emergence of new intrinsic relatednesses and additive properties (using this phrase in Professor Morgan's sense), with continuity in progress through resultants, and progress in continuity through emergence. The detailed course of this evolution is not yet clear, since science is not yet in a position to speak of it with absolute certainty, but we are prepared

to accept and adopt this picture as it is gradually clarified.

Transcendently outside of the pyramid as well as immanently within it is God the Blessed Trinity, upon Whom the whole is ultimately dependent. By this ultimate dependence, Catholic-minded Christians mean four things: creation, preservation, concursus, and providence (see 10 a). By "creation" is meant the truth that God created the world in time, *ex nihilo*. This creative act gave rise to process, and therefore we may speak of creative process, but may not signify thereby any thought of eternal creation. By "preservation" we mean that God constantly sustains and upholds His creation. By "concursus," we mean that all creaturely action requires divine causation, that God is truly immanent within His universe. By "divine providence" we mean that God exercises ultimate control over the course of creaturely events, that He transcends His creation. (It should be noted that this is quite different from what Professor Morgan means by "ultimate dependence.")

Within the pyramid, in complete dependence upon God the Blessed Trinity and according to His Will, there unfolds in emergent evolution in time and space what His creative Will originally enfolded therein, each new level involving the lower emergents, the lower levels progressively dependent upon the new emergents, yet throughout with ultimate dependence upon God.

But since there is, for Christians, outside of the pyramid a disparate realm of the immaterial, the possibility of intervention from without is expressly provided for (although the theory of emergence as such intentionally excludes such intervention). Because we do not believe that inorganic matter has any psychical correlate of corresponding status, we do not treat life, mind, and spirit as evolutionary stages in the history of such correlates, but regard them as entelechy, as a disparate order of being ingredient from without the pyramid, which intimately interpenetrates and possesses the higher emergent levels of matter. Each such ingredient level conforms, as do the strictly emergent

levels, to the laws of involution and dependence.

Such ingredience from without is what is usually called, theologically, "involution," although the term has not been used at all in this sense in this paper. If in this paragraph, we may speak of the original creation as the original "involution," we would hold that the creative process which followed was the unfolding of what was then enfolded. But we would hold that cosmic evolution has required successive "involutions" additional to the first. Revealed religion does not suggest, even approximately, how many of these subsequent "involutions" there have been, but it seems to the writer a probable inference from Christian premises that at least life, mind, and spirit represent successive separate "involutions," and the immediate creation of each human soul is of faith.

There is no conflict between "emergence from within" and "ingredience from without" the pyramid, because God is the unmoved but moving Cause of all, and all Activity, whether immanent or transcendent, is

but the expression of His unchanging Will.

Strictly within the physical creation, the highest level is humanity, although we must remember that only man's faculties of body, not of soul, inhere therein. We postulate (because the evidence seems to us conclusive) that the human body has been derived by natural generation from lower forms of animal life *"in tempora secundum causales rationes"* (see 1 b). But we also insist with St. Augustine (see 1 c) that this body was not properly a *human* body until it was so constituted *in actu* by the creative implanting of the human soul. This is also our interpretation of St. Thomas Aquinas (Summa I. 191.2): *"Corpus humanum de materia fieri possit a Deo; et hoc modo secundum Augustum corpus hominis prae-existit in operibus productis, secundum causales rationes."*

We believe then (a) that the human body was a mediate creation in the sense that it was formed from pre-existing materials by the natural generation of a protoplasm which had behind it a long evolutionary history;

(b) that its creation was immediate in the sense that the infusion of an immediately created soul constituted its *humanity;* and (c) that what was true of our first parents is likewise true of ourselves.

But our human nature is incomplete; that is, by itself it is insufficient for the life of perfect union with God which is our true destiny. When man was formed, a special endowment of divine grace was therefore conditionally bestowed upon him. This additive endowment man unfortunately forfeited. His natural incapacity now appears, on the supernatural level, in his inability to attain unaided his destined end of union with God, and on the natural, in his inability rationally to control his animal passions which remain as "affections of the flesh," and in a disordered environment, the result of this lack of control.

God's love did not leave man in this unhappy state. In the fulness of time, the Word was made flesh. The Sacred Humanity, conceived by the Holy Ghost in the womb of the Blessed Virgin, of her substance, was so

assumed by the only-begotten Son that without confusion perfect Manhood was joined with the Godhead in one Person, Jesus Christ our Lord. Thus the Incarnation established a new level, God-in-manhood, not only the highest level of the whole creation, but the final, for it transcends creation. It was the ingredience, not of created entelechy, but of God Himself, an ingredience destined to affect the whole course and order of nature.

For the Incarnation was the goal of creation, and if evolution be (as we suppose) the method of creation, it is from the Incarnation that the whole evolutionary process takes meaning. For long its chief interest centered in the development of humanity, but when in time and space God Himself bridged the gulf between Creator and creature by assuming the limits of human flesh, evolution no longer centered in the merely human but in the newly constituted status of God-in-manhood.

The Incarnation substantiated a cosmic order which transcends creation. This new

level is no other than the Christian Church whose divine fellowship is opened up to man. Into this fellowship there is but one door, that of Holy Baptism, whereby man receives that which by nature he cannot have. For the holy catholic Church which Christ came on earth to found is nothing less than His Body, the mystical extension through sacramental mysteries of that Sacred Humanity which He assumed in Mary's womb, and into which we are actually incorporated as living members. God sent forth His Son that we might receive the adoption of sons; He hath made us accepted in the Beloved. As St. Paul declared, in Christ Jesus man becomes a new creature. Raised by Holy Baptism to the new level of Manhood-in-God, his natural insufficiency is supernaturally supplemented as he is delivered from the bondage of corruption into the glorious liberty of the children of God.

That there is both progress in continuity and continuity in progress is not less true of the Incarnation than of the lower orders of evolution; indeed it is true of these lower

orders only because what is implicit in them is explicitly and perfectly fulfilled by the Incarnation. And, so, because our religion looks forward to the Second Advent as well as backward to Bethlehem, we Christians, whatever our world view of created nature, conscious of Christ in us the hope of glory, await the full evolving of this latest order, knowing that the Saints still travail until Christ be formed in us, as we and they await the consummation when God shall be all in all.

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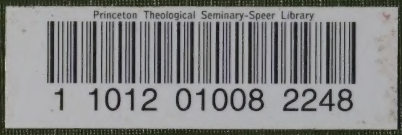
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